



## Designing and implementing a portal-based prototype for integration of commercial relationships between economic agents

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**Abstract:** *Taking into consideration the need to improve the commercial relations between different economic agents, we identified the opportunity for integrating the collection / deduction of VAT and excise tax operations at the level of an independent structure that is portal-based. The purpose of this paper is to present a portal-based solution for integrating the commercial relationships between economic agents. Also, in this paper we describe a conceptual model of a portal-based prototype solution for increasing the accuracy of commercial transactions (sale-purchase).*

**Keywords:** *portal, commercial relationships, VAT deduction, economic agent.*

### 1. INTRODUCTION

For companies to be successful in the ever changing business world means that they must have the capacity to meet the needs of their customers, partners, employees and shareholders. Although a series of solutions have been developed, many companies do not possess information technologies that will ensure a fast and efficient flow of information and communication. The expansion of the globalization effect to which the Internet and Web-based services have decisively contributed, new portal type information technologies have emerged. For the modern and competitive organization these types of technologies propose the concept of collaborative enterprise [4].

The enterprise portal is a Web community at the level of the collaborative enterprise that offers users, in a safely manner, an interface customized depending on their role. Integrating information/knowledge, applications and services in a unitary structure, the portal offers a unified access point to the virtual collaborative environment via customized user interface. [4]. A flexible portal solution backs up the enterprise specific internal processes (B2E Portal: Business-to-Employees), but does not disregard the

possibility of extending the communication process to the enterprise partners as well (B2C Portal: Business-to-Consumer or B2B: Business-to-Business). At the level of extended enterprise, the portal enables the enterprise's relations with the loyal customers but also with its suppliers or other partners [4]. Since the appearance of the portal market in 1990 that features web pages aggregated to other Websites within an enterprise, the evolution of the portal solutions now approaches service oriented architectures that may open outside the organization too. This evolutionary process has been absolutely influenced by the performances of the Web standard (JSR168, WSRP).

Also in a competition economy, the success of a company depends mostly on the quality of their data, information and decisions made by its managers. Together with the development of the information systems, decision-making involves, more and more, the need of a larger volume of information and a complex process of analyzing and synthesizing financial information [2]. This capacity of collecting, processing and analyzing the information required in the decision making process went beyond the human limits, the use of information technologies, like portals being

needed to support the decision within the financial process decision making.

The paper is structured in four sections. In the first section we underline the role of portal-based technologies in financial process decision making. In second section we present the research methodologies used for this applied research. In the third section we present the experimental results and the discussion of them. In the fourth section we present our conclusions.

## 2. RESEARCH METHODOLOGY

### Research problem

We propose a conceptual model of a portal-based solution for integrating the commercial relationships between economic agents.

### Research design

The research is quantitative based on experimental development, testing and validate the proposed prototype.

### Sample, population or subjects

The sample consists of a two test companies running its commercial transactions together in our portal-based prototype.

### Instrumentation and materials

The portal was developed using PHP and MySQL technologies and distributed on the Apache Web Server.

## 3. RESULTS AND DISCUSSION

### 3.1 Architecture of the Prototype

Components (figure 1):

- Electronic cash register (Fiscal receipt)
- Mobile device (GPRS/GSM)
- Application for mobile device
- Customer PC/LAPTOP
- Supplier PC/LAPTOP
- Customer ERP Server (option)

- Supplier ERP Server (option)
- Apache/php Server
- MYSQL Database Server

The electronic cash register is connected to a mobile device via Bluetooth or (RS232) COM serial cable.

The mobile device is connected through GSM/GPRS with the help of an application (as middleware) to the main server; after authentication, it shall process the information contained by the fiscal receipts and send them to the application server.

The application server is hosted on the portal where each customer/supplier has a personal account that will allow authentication. The user will also have to possess a digital signature or certificate.

The customer can also connect directly from the Laptop/PC to the application server where upon prior registration/authentication, the customer may issue the invoice online or release reports regarding the management of the commercial relationships with the supplier.

The customer/supplier ERP server (if applicable) shall also be connected to the application server where it will send the customer/supplier data in XML format.

The supplier can also connect directly from the Laptop/PC to the application server where upon prior registration/authentication may issue the invoice online or release reports regarding the management of the commercial relationships with the customer.

All information and operations will be supported by the database server (MySQL).

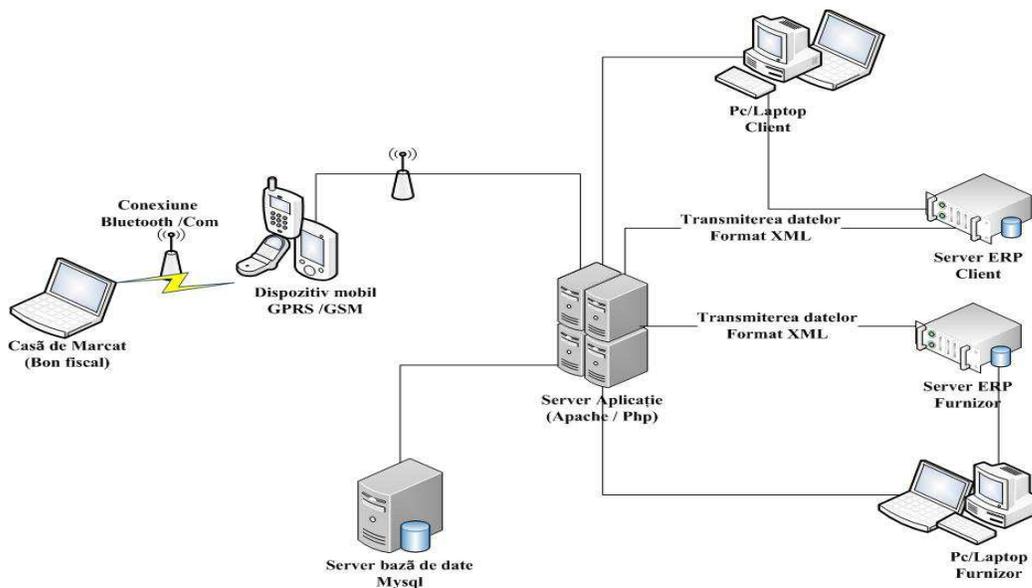


Figure 1. Prototype architecture

### 3.2. Portal presentation

The portal is made in PHP connected to a MySQL Database Server [1],[6],[3],[5]. In order to register, the customer/supplier must create an account. Fiscal Code, e-mail address and password are the main identification credentials to which the digital signature/certificate is added.

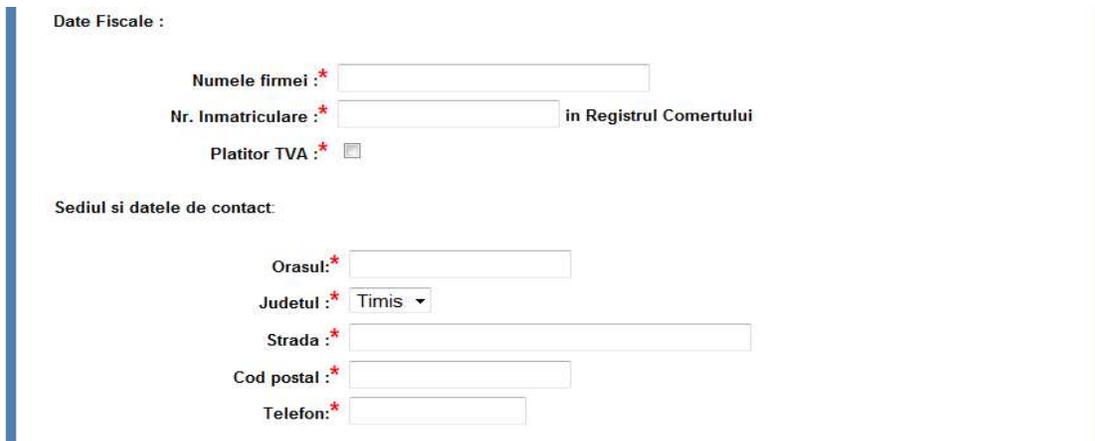
After filling in the registration (figure 2) form and validation an activation code shall be transmitted via e-mail. The e-mail address must be a valid one otherwise the activation code cannot be sent.

The screenshot shows a web registration form. At the top right, it says 'Tuesday, April 05, 2011'. Below that, it displays 'Your IP address is 0.0.0.0'. A note reads 'Note : Toate \* sunt necesare' (All \* are necessary). The form contains four input fields: 'Cod fiscal : \*', 'Adresa de email : \*', 'Parola : \*', and 'Reintroduceti parola : \*'. Below the fields are two buttons: 'Trimite' (Submit) and 'Anulare' (Cancel).

Figure 2. Registration – step 1.

After the account has been activated, the user will be able to edit both the fiscal and personal data (figure 3). Fiscal data: company name, Trade

Register Registration Number and VAT number if applicable, headquarters. Contact data: city, county, street, zip code and telephone.



The form is titled "Date Fiscale :" and contains the following fields:

- Numele firmei : \*
- Nr. Inmatriculare : \* in Registrul Comertului
- Platitor TVA : \*

Below this is the section "Sediul si datele de contact:" with the following fields:

- Orasul : \*
- Judetul : \* Timis
- Strada : \*
- Cod postal : \*
- Telefon : \*

**Figure 3.** Registration – step 2

In order to issue an invoice, the user may select a customer from the list (figure 4). It may be a customer to which the user used to work with or the user may choose a new buyer. For the new buyer, the user will have to insert the fiscal data.

If previous activity related to customer has been registered then it will automatically appear in the list and the fiscal/personal data will immediately be displayed.



The form contains the following fields:

- Alege Cumparator : \* Cumparator Nou
- Cumparator : \* Cumparator Nou  
S.C. exmeplu S.R.L
- Cod fiscal / CNP : \*
- Sediul : \*
- Localitate : \*
- Judet : \* Timis
- Cont Bancar : \*
- Banca : \*
- Telefon : \*
- Email : \*

**Figure 4.** Customer registration/selection

Additional information (e.g. VAT exemption, with/without deduction rights, reverse VAT

charge, if applicable) may be selected when issuing the invoice that already contains the necessary data (figure 5).

NR / DATA FACTURA

Factura Serie.:\*  N.R.:\*

Aviz Nr.:

Data (dd/mm/yyyy) :\*  - (01) January / 2011 Ora  -

Scadenta (dd/mm/yyyy) :\*  - (01) January / 2011 Ora  -

Chitanta

Da  Nu

Nr chitanta.:

Informatii Suplimentare : 

- Nu are informatii suplimentare
- Nu are informatii suplimentare
- Scutit de TVA, cu drept de deducere
- Scutit de TVA, fara drept de deducere
- Taxa inversa

Figure 5. Invoice data

The invoices, fiscal and cash will be displayed in PDF format (figure 6). If the invoice has been imported from an external environment (scanned) it may also be displayed as jpg .

	Nr. fact	Seria fact	Aviz	Data	Data sca	Cumparator	Total	Incasat	Chitanta	Actiuni
<input type="checkbox"/>	1233221	DASE09	-	08-04-2011	08-04-2011	SC.EXEMPLU.SRL	500.00	0	Tipareste chitanta	 

Figure 6. Invoice items

Once the invoice has been issued both the supplier and the customer will have the invoice registered. The supplier will be able to see the invoice in the Customer field, and the customer in the Supplier field (figure 7).

Figure 7. Options (customer, supplier)

3. CONCLUSIONS

The enterprise portal offers a new working environment, a collaborative environment that supports and (partially or fully) automates the working flows/business processes. It does so by creating and using the information/knowledge but also by allowing communication and implementation of resolutions and actions. The functionalities contemplated for a portal solution together with a series of factors like time and cost

will shape the portal’s developing strategy. The PHP & MySQL configuration has been designated as appropriate for implementing the above solution that is aiming to integrate the commercial relations between economic agents.

REFERENCES

[1] Buraga, S., Alboaie, L., *Servicii Web. Concepte de bază si implementări*, Editura Polirom, Iași, 2006

[2] Brândaș, C., *Sisteme suport de decizie pentru managementul performant*, Editura Brumar, Timisoara, 2007

[3] Lungu, I., Sabău, Gh., Velicanu, M., Muntean, M., *Sisteme informatice. Analiză, proiectare și implementare*, Editura Economică, 2003

[4] Muntean, M., *Abordări ale unor sisteme colaborative în medii bazate pe cunoștințe*, Editura Mirton, Timisoara, 2010

[5] Oprea, D., *Analiza si proiectarea sistemelor informaționale economice*, Editura Polirom, Iasi, 1999

[6] Welling L., *Dezvoltarea aplicatiilor Web cu PHP si MySQL*, Editura Teora, Bucuresti, 2007